WHAT IS CLAIMED IS:

1. A mobile station for wirelessly transmitting to a base station by DS-CDMA a signal which is spread by multiplying a spreading code, comprising:

a chip-pattern generating unit which generates one or a plurality of predetermined chip patterns by performing chip repetition to a spreading chip sequence for a predetermined number of repetitions, thereby generating a signal comprising said predetermined chip pattern ; and

a multiplying unit which multiplies to the signal comprising said predetermined chip pattern one or a plurality of phases specific to said mobile station.

2. The mobile station as claimed in claim 1, wherein said chip-pattern generating unit, in accordance with a data rate specified by the mobile station, assigns to the mobile station at least one of one or a plurality of said chip patterns and one or a plurality of said phases.

3. The mobile station as claimed in claim 1, wherein the multiplying unit multiplies to the signal comprising said predetermined chip pattern one or a plurality of phase sequences specific to said mobile station.

4. The mobile station as claimed in claim 1, further comprising:

a variable controlling unit which variably controls at least one of a spreading factor of said spreading code and the number of chip repetitions, a scrambling code which is multiplied to the spreading chip sequence, and the phase sequence specific to the mobile station; and

an external controlling unit which controls, based on a set of controlling information, at least one of said spreading factor and number of chip repetitions, said scrambling code, and the phase sequence specific to the mobile station.

5. The mobile station as claimed in claim 1, further comprising a multiplexing unit which multiplexes a plurality of channels which are multiplied, when performing the chip repetition for the predetermined number of repetitions, by different spreading codes,

said mobile station performing, after said

multiplexing, the chip repetition.

6. The mobile station as claimed in claim 1, further comprising a transmission timing control unit which controls transmitting timings of transmitting signals so that timings of receiving at the base station from respective mobile stations coincide.

7. The mobile station as claimed in claim 6, wherein said transmission timing control unit comprises a low-precision timing control unit which controls said transmitting timings of the transmitting signals so as to contain time differences among the timings of receiving at the base station from the respective mobile stations.

8. The mobile station as claimed in claim 6, wherein said transmission timing control unit comprises a path-standard type timing control unit which performs, based on first paths, the transmission timing control so that said first paths are received at the base station at same timing.

9. The mobile station as claimed in claim 7, further comprising a timing control switching unit which, when receiving a set of controlling information indicating a cell environment, selects, based on said cell environment, one of the low-precision timing control unit and a high-precision transmission control unit which controls transmitting timings of transmitting signals so that a time difference at the base station among timings of receiving from the mobile station approaches zero.

10. The mobile station as claimed in claim 1, further comprising a guard interval inserting unit which inserts a guard interval per chip pattern to which the chip repetition is performed for the predetermined number of repetitions.

11. The mobile station as claimed in claim 1, further comprising a chip pattern length setting unit which sets, based on time difference at the base station of timings of receiving from respective mobile stations, length of chip pattern to which the chip repetition is performed for the predetermined number of repetitions.

12. The mobile station as claimed in claim 1, further comprising a pilot-signal transmitting unit which, after multiplexing to a transmitting signal a pilot signal having known amplitude and phase, performs said chip repetition.

13. A mobile station for wirelessly transmitting to a base station by DS-CDMA a signal which is spread by multiplying a spreading code, comprising,

a high-precision transmission timing control unit which controls transmitting timings of transmitting signals so that a time difference at the base station among timings of receiving from a plurality of mobile stations approaches zero.

14. The mobile station as claimed in claim 13, further comprising a determining unit which, based on at least one of an information set indicating number of mobile stations simultaneously connected to the base station which is reported from an outside source, an information set indicating power of interference from surrounding cells, and an information set indicating a propagation channel

condition.

15. A base station, which base station is capable of communicating with a mobile station, the base station comprising,

a controlling-information transmitting unit which transmits to the mobile station as a set of controlling information, an information set indicating an environment of a cell which is resided by the mobile station, or an information set indicating power of interference from surrounding cells, or an information set indicating a condition of propagation channel; and

a receiving unit which receives a signal transmitted from the mobile station, based on said set of controlling information, via a variably-controlling process of a spreading factor and a number of chip repetitions.

16. The base station as claimed in claim 15, further comprising,

a received timing measuring unit which measures timings of receiving from respective mobile stations signals which are transmitted from the respective mobile stations;

a transmitting timing determining unit which determines from the timings of receiving from the

respective mobile stations timings to be transmitted by the respective mobile stations; and

a reporting unit which reports to the respective mobile stations an information set on the timings to be transmitted which are determined by said transmitting timing determining unit.

17. The base station as claimed in claim 16, wherein said received timing measuring unit measures, using pilot signals transmitted from the respective mobile stations, the timings of receiving from the respective mobile stations.

18. The base station as claimed in claim 16, further comprising a path detecting unit which detects a received path having a predetermined power level or above for the respective mobile stations,

said transmitting timing determining unit determines, based on said detected received paths, the timings to be transmitted by the respective mobile stations.

19. The base station as claimed in claim 17, further comprising an other-station interference

removing unit which removes interference caused by paths from other mobile stations having received timings which do not coincide; and

an interference removing unit which removes interference caused, due to an effect of the propagation channel, by a delayed wave in a signal which is transmitted from said mobile station.

20. A program for wireless transmission and for implementation into a mobile station which wirelessly transmits to a base station by DS-CDMA a signal which is spread by multiplying a spreading code, said program comprising:

a chip-pattern generating function of generating a predetermined chip pattern by performing chip repetition to a spreading chip sequence for a predetermined number of repetitions and

a multiplying function of multiplying to the signal comprising said predetermined chip pattern a phase specific to said mobile station.

21. A method of wireless transmission, wherein a mobile station which wirelessly transmits to a base station by DS-CDMA a signal which is spread by multiplying a spreading code, the method comprising:

a chip-pattern generating step of generating a predetermined chip pattern by performing chip

repetition to a spreading chip sequence for a predetermined number of repetitions ; and

a multiplying step of multiplying to a signal comprising said predetermined chip pattern a phase specific to said mobile station.

22. The method of wireless transmission as claimed in claim 21, wherein said chip-pattern generating step, in accordance with a data rate desired by the mobile station, assigns to the mobile station at least one of one or more of said chip patterns and one or more of said phase sequences.

23. The method of wireless transmission as claimed in claim 21, further comprising a controlling step performed by said mobile station of variably controlling at least one of a spreading factor of said spreading code and number of chip repetitions, a scrambling code which is multiplied to the spreading chip sequence, and a phase sequence which is specific to a mobile station.

24. The method of wireless transmission as claimed in claim 21, further comprising the step of

controlling transmission timings of transmitting signals so as to contain time differences at the base station among timings received from the mobile stations to within a predetermined time difference.

25. The method of wireless transmission as claimed in claim 21, further comprising the step of controlling, performed by said mobile station which wirelessly transmits to a base station by DS-CDMA a signal which is spread by multiplying the spreading code, transmitting timings of transmitting signals so that time difference at the base station among timings received from respective mobile stations approaches zero.

26. The method of wireless transmission as claimed in claim 21, the method further comprising:

a variable controlling step of variably controlling at least one of a spreading factor of said spreading code and the number of chip repetitions, a scrambling code which is multiplied to the spreading chip sequence, and the phase sequence specific to the mobile station; and

an external controlling step of controlling, based on a set of controlling information, at least one of said spreading factor and number of chip repetitions, said scrambling code, and the phase

sequence specific to the mobile station.

27. The method of wireless transmission as claimed in claim 21, further comprising a multiplexing step of multiplexing a plurality of channels which are multiplied, when performing the chip repetition for the predetermined number of repetitions, by different spreading codes,

said mobile station performing, after said multiplexing, the chip repetition.

28. The method of wireless transmission as claimed in claim 21, further comprising a guard interval inserting step of inserting a guard interval per chip pattern to which the chip repetition is performed for the predetermined number of repetitions.

29. The method of wireless transmission as claimed in claim 21, further comprising a chip pattern length setting step of setting, based on time difference at the base station of timings of receiving from respective mobile stations, length of chip pattern to which the chip repetition is performed for the predetermined number of repetitions.

30. The method of wireless transmission as claimed in claim 21, further comprising a pilot-signal transmitting step of, after multiplexing to a transmitting signal a pilot signal having known amplitude and phase, performing said chip repetition.

31. The method of wireless transmission as claimed in claim 24, further comprising a timing control switching step of, when receiving a set of controlling information indicating a cell environment, selecting, based on said cell environment, one of the low-precision timing control unit and a high-precision transmission control unit which controls transmitting timings of transmitting signals so that a time difference at the base station among timings of receiving from the mobile station approaches zero.

32. A method of wireless transmission, wherein a mobile station which wirelessly transmits to a base station by DS-CDMA a signal which is spread by multiplying a spreading code, the method comprising,

a high-precision transmission timing controlling step of controlling transmission timings of

transmitting signals so that a time difference at the base station among timings of receiving from a plurality of mobile stations approaches zero.

33. The method of wireless transmission as claimed in claim 32, further comprising a determining step of determining, based on at least one of an information set indicating number of mobile stations simultaneously connected to the base station which is reported from an outside source, an information set indicating power of interference from surrounding cells, and an information set indicating a propagation channel condition.

34. A method of wireless transmission, wherein a base station is capable of communicating with a mobile station, the method comprising:

a controlling-information transmitting step of transmitting to the mobile station as a set of controlling information, an information set indicating an environment of a cell which is resided by the mobile station, or an information set indicating power of interference from surrounding cells, or an information set indicating a condition of propagation channel; and

a receiving step of receiving a signal transmitted from the mobile station, based on said set

of controlling information, via a variably-controlling process of a spreading factor and a number of chip repetitions.

35. The method of wireless transmission as claimed in claim 34, further comprising,

a received timing measuring step of measuring timings of receiving from respective mobile stations signals which are transmitted from the respective mobile stations;

a transmitting timing determining step of determining from the timings of receiving from the respective mobile stations timings to be transmitted by the respective mobile stations; and

a reporting step of reporting to the respective mobile stations an information set on the timings to be transmitted which are determined by said transmitting timing determining unit.

36. The method of wireless transmission as claimed in claim 35, wherein said received timing measuring step measures, using pilot signals transmitted from the respective mobile stations, the timings of receiving from the respective mobile stations.

37. The method of wireless transmission as claimed in claim 35, further comprising a path detecting step of detecting a received path having a predetermined power level or above for the respective mobile stations,

said transmitting timing determining step determines, based on said detected received paths, the timings to be transmitted by the respective mobile stations.

38. The method of wireless transmission as claimed in claim 37, further comprising an other-station interference removing step of removing interference caused by paths from other mobile stations having received timings which do not coincide; and

an interference removing step of removing interference caused, due to an effect of the propagation channel, by a delayed wave in a signal which is transmitted from said mobile station.